

IN THE CLAIMS:

Please amend the claims as follows:

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1. (Canceled).
 2. (Canceled).
 3. (Canceled).
 - 10 4. (Canceled).
 5. (Canceled).
 6. (Canceled).
 - 15 7. (Canceled).
 8. (Canceled).
 - 20 9. (Canceled).
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 11. (Canceled).
 - 25 12. (Canceled).
 13. (Canceled).

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19. (Canceled).

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15 21. (Withdrawn) A method for amplifying signals, the method comprising the steps of:

determining that a voltage on a signal line is to be amplified; and

20 modifying voltage on a control line, wherein the control line is coupled to a second terminal of a two terminal semiconductor device, the two terminal semiconductor device having the second terminal and a first terminal, the first terminal coupled to the signal line, the second terminal coupled to the control line, wherein the two terminal semiconductor device is adapted to have a capacitance when a voltage on the first terminal is in a first voltage range and to have a lower capacitance when the voltage on the first terminal is in a second voltage range, wherein said first and second voltage ranges are defined by a threshold voltage, and wherein the
25 control line is adapted to be coupled to a control signal and wherein the signal line is adapted to be coupled to a signal and to be an output of the circuit and wherein the two terminal semiconductor device amplifys said signal in response to a substantial change in voltage of said control signal.

22 (Withdrawn) The method of claim 21, further comprising the step of determining
a sensed voltage based on a voltage at the output, whereby the sensed voltage will be amplified
when a voltage on the first terminal relative to the second terminal is in said first voltage range
and will not be amplified when a voltage on the first terminal relative to the second terminal is in
5 said second voltage range.

23 (Withdrawn) The method of claim 21, wherein the two terminal semiconductor
device comprises a gated diode having a well and wherein the threshold voltage can be modified
by modifying a dopant level in the well of the gated diode.

24 (Previously Presented) A method for amplifying signals, the method comprising
the steps of:

determining that a voltage on a signal line is to be amplified; and

modifying voltage on a control line, wherein the control line is coupled to a
15 second terminal of a two terminal semiconductor device, the two terminal semiconductor device
having the second terminal and a first terminal, the first terminal coupled to the signal line, the
second terminal coupled to the control line, wherein the two terminal semiconductor device is
adapted to have a capacitance when a voltage on the first terminal is in a first voltage range and
to have a lower capacitance when the voltage on the first terminal is in a second voltage range,
20 wherein said first and second voltage ranges are defined by a threshold voltage, and wherein the
control line is adapted to be coupled to a control signal and wherein the signal line is adapted to
be coupled to a signal and to be an output of the circuit; and

wherein an isolation device is intermediate the signal line and the two terminal
semiconductor device, the isolation device having an input, an output and a control terminal, the
25 input of the isolation device coupled to the signal line and the output of the isolation device
coupled to the first terminal, wherein the output of the isolation device is adapted to be the output
of the circuit, and wherein the method further comprises the step of applying a control voltage to
the control terminal of the isolation device, the control voltage being greater than a threshold
voltage of the isolation device

25. (Original) The method of claim 24, wherein the control voltage applied to the control terminal of the isolation device plus an expected voltage for a signal coupled to the input of the isolation device, whereby the isolation device passes signals having voltages less than the expected voltage and does not pass signals having voltages greater than the expected voltage.

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26. (Original) The method of claim 24, wherein the isolation device comprises a Field Effect Transistor (FET) and wherein the FET is adapted to be turned on when voltage on the signal line is below a predetermined value, and is adapted to be turned off when voltage on the first terminal of the two terminal semiconductor device is above a predetermined value.

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27. (Original) The method of claim 26, wherein the FET is an n-type FET, wherein the control terminal of the FET is the gate of the FET, and wherein the step of applying a control voltage to the control terminal of the isolation device of the isolation device further comprises the step of applying a voltage above a threshold voltage to the gate of the FET.

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28. (Original) The method of claim 26, wherein the FET is a p-type FET, wherein the control terminal of the FET is a gate, and wherein the step of applying a control voltage to the control terminal of the isolation device of the isolation device further comprises the step of applying a voltage below a threshold voltage to gate of the FET.

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29. (Withdrawn) The method of claim 21, wherein the two terminal semiconductor device comprises a gated diode comprising an insulator formed between a gate and a well, a source diffusion region abutting and overlapping one side of the insulator and gate, and a shallow trench isolation region abutting another side of the insulator and gate, wherein the second terminal is coupled to the source diffusion region and the first terminal is coupled to the gate.

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30. (Withdrawn) The method of claim 21, wherein the two terminal semiconductor device comprises a gated diode comprising an insulator formed between a gate and a well, a source diffusion region abutting and overlapping one side of the insulator and gate, a "drain"

diffusion region abutting and overlapping another side of the insulator and gate, and a coupling that electronically couples the source and “drain” regions, wherein the second terminal is coupled to the source diffusion region and the first terminal is coupled to the gate.

5 31. (Withdrawn) The method of claim 21, wherein the two terminal device comprises a gated diode.

32. (Withdrawn) The method of claim 31, wherein the gated diode further comprises an n-type gated diode, wherein the threshold voltage is a positive voltage and wherein the step of
10 modifying voltage on a control line comprises the step of raising voltage from about ground to a predetermined positive voltage.

33. (Withdrawn) The method of claim 31, wherein the gated diode further comprises an p-type gated diode, wherein the threshold voltage is a negative voltage and wherein the step
15 of modifying voltage on a control line comprises the step of lowering voltage from about a power supply voltage to a predetermined positive voltage.

34. (Withdrawn) The method of claim 33, wherein the predetermined positive voltage is between ground and the supply voltage.
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35. (Withdrawn) The method of claim 21, wherein the method further comprises the step of determining an output corresponding to the signal.

36. (Original) The method of claim 24, further comprising the step of generating the
25 control voltage by using at least a reference voltage and the control voltage.

37. (Original) The method of claim 36, wherein the step of generating the control voltage further comprises the step of generating the reference voltage by using one or more of the following: a ground voltage; a power supply voltage; the signal; the threshold voltage; one

or more additional threshold voltages; one or more temperature signals; and the control voltage.

38. (Canceled).

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42. (Canceled).